



NVLAP LAB CODE 200707-0



EN 55022: 2006 CLASS B

MEASUREMENT AND TEST REPORT

For

SLICAN SP. ZO.O

UL.M. KONOPNICKIEJ 18 85-124 BYDGOSZCZ, POLAND

Model: XL-2023ID

This Report Concerns: <input checked="" type="checkbox"/> Original Report	Equipment Type: Telephone
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Report Number:	RSZ08010802-1
Test Date:	2008-01-14
Report Date:	2008-01-16
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Note: This test report is for the customer shown above and their specific product only. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Shenzhen). This report **must not** be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the Federal Government.

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GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The SLICAN SP. ZO. O's product, model: XL-2023ID or the "EUT" as referred to in this report is a Telephone which measures approximately 8.0 cm L x 5.7 cm W x 2.3 cm H.

** All measurement and test data in this report was gathered from production sample serial number: 0801013 (Assigned by BACL, Shenzhen). The EUT was received on 2008-01-08.*

Objective

The following test report is prepared on behalf of SLICAN SP. ZO.O in accordance with EN 55022, Information technology equipment-Radio disturbance characteristics-Limits and methods of measurement.

The objective of the manufacturer is to determine compliance with EN 55022.

Related Submittal(s)/Grant(s)

No related submittal(s).

Test Methodology

All measurements contained in this report were conducted with CISPR 16-1: 2002, radio disturbance and immunity measuring apparatus, and CISPR16-2: 2002, Method of measurement of disturbances and immunity.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 Meters.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located in the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone ShenZhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on November 04, 2004. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0). The current scope of accreditations can be found at <http://ts.nist.gov/Standards/scopes/2007070.htm>.

SYSTEM TEST CONFIGURATION

Justification

The system was configured for testing in a typical fashion (as normally used by a typical user).

EUT Exercise Software

N/A.

Special Accessories

The special accessories were supplied by Bay Area Compliance Laboratories Corp. (Shenzhen).

Block Diagram/Schematics

Please refer to the Exhibit C.

Equipment Modifications

No modifications were made to the unit tested.

Local Support Equipment

Manufacturer	Description	Model	Serial Number	FCC ID
KeWang	Program- Control Telephone Exchange	TC-104L	N/A	Verification
Tianniao	Telephone	HCD1698(28)TDL	N/A	Verification

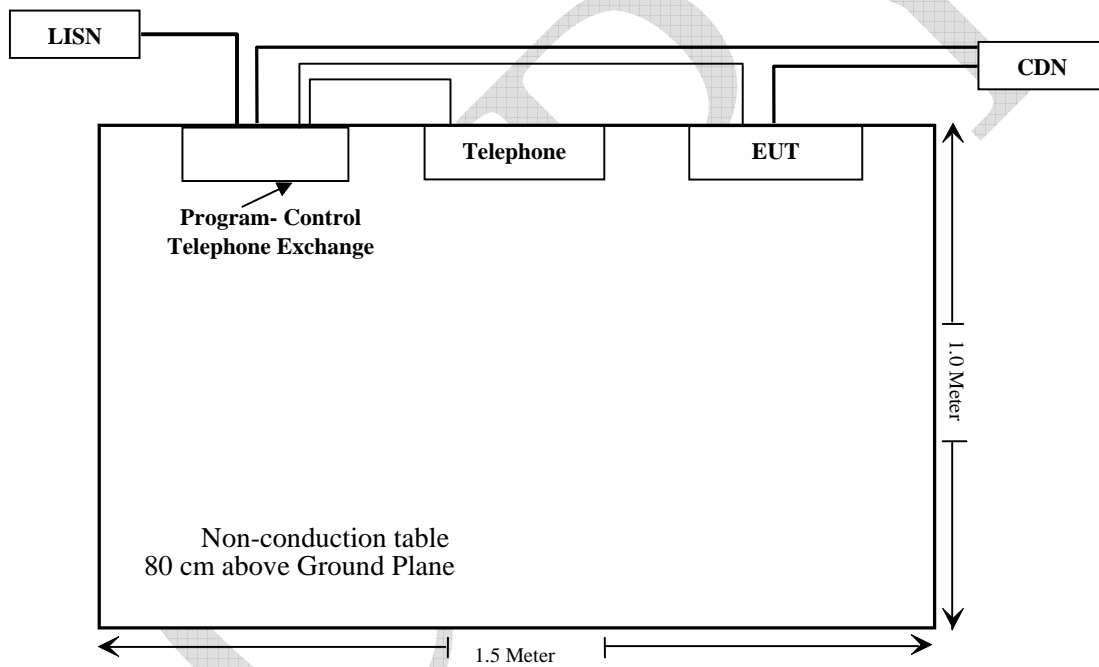
External I/O Cable

Cable Description	Length (M)	From/Port	To
Unshielded Detachable Power RJ11 Cable	1.5	EUT	Program- Control Telephone Exchange

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST REPORT

EN 55022

RULE	DESCRIPTION	RESULTS
§ 5.1	Conducted Disturbance at Mains Terminals	N/A
§ 5.2	Conducted Disturbance at Telecommunication ports	Compliant
§ 6	Radiated Disturbance	Compliant

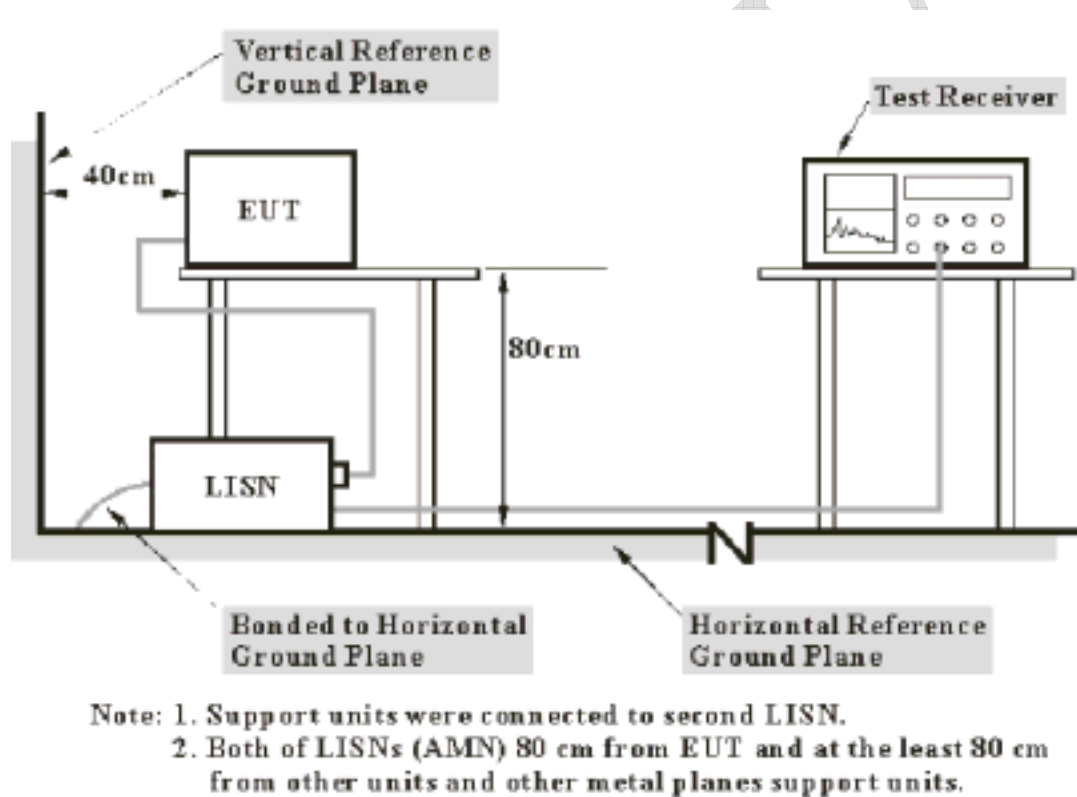
EN 55022 §5.2-CONDUCTED DISTURBANCE AT TELECOMMUNICATION PORTS

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is $\pm 2.4\text{dB}$.

Test System Setup



The setup of EUT is according with CISPR 16-1: 2002, CISPR16-2: 2002 measurement procedure. The specification used was the EN 55022 Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

<i>Frequency Range</i>	<i>IFBW</i>
150 kHz – 30 MHz	9 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Com-Power	L.I.S.N.	LI-200	12005	N/A	N/A
Com-Power	L.I.S.N.	LI-200	12208	N/A	N/A
Rohde & Schwarz	EMI Test Receiver	ESCS30	DE25330	2007-03-26	2008-03-26
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2007-03-26	2008-03-26

* Com-Power's LISN were used as the supporting equipment.

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance using all installation combination.

All data was recorded in the Quasi-peak and average detection mode.

Test Results Summary

According to the recorded data in following table, the EUT complied with the EN 55022 Class B, with the worst margin reading of:

31.20 dB at 10.750 MHz in the RJ11 conductor mode.

Test Data**Environmental Conditions**

Temperature:	25 ° C
Relative Humidity:	56 %
ATM Pressure:	100.2 kPa

The testing was performed by King Tang on 2008-01-14.

Test Mode: Running (RJ11)

LINE CONDUCTED EMISSIONS				EN 55022	
Frequency	Amplitude	Detector	Telecommunication Port	Limit	Margin
MHz	dB μ V	QP/AV	RJ11	dB μ V	dB
10.750	32.80	AV	RJ11	64.00	31.20
10.750	33.20	QP	RJ11	74.00	40.80
25.080	17.80	AV	RJ11	64.00	46.20
21.500	12.10	AV	RJ11	64.00	51.90
25.080	19.50	QP	RJ11	74.00	54.50
0.840	17.80	QP	RJ11	74.00	56.20
1.290	7.60	AV	RJ11	64.00	56.40
3.530	17.00	QP	RJ11	74.00	57.00
1.290	16.80	QP	RJ11	74.00	57.20
21.500	16.80	QP	RJ11	74.00	57.20
0.840	6.20	AV	RJ11	64.00	57.80
3.530	3.50	AV	RJ11	64.00	60.50

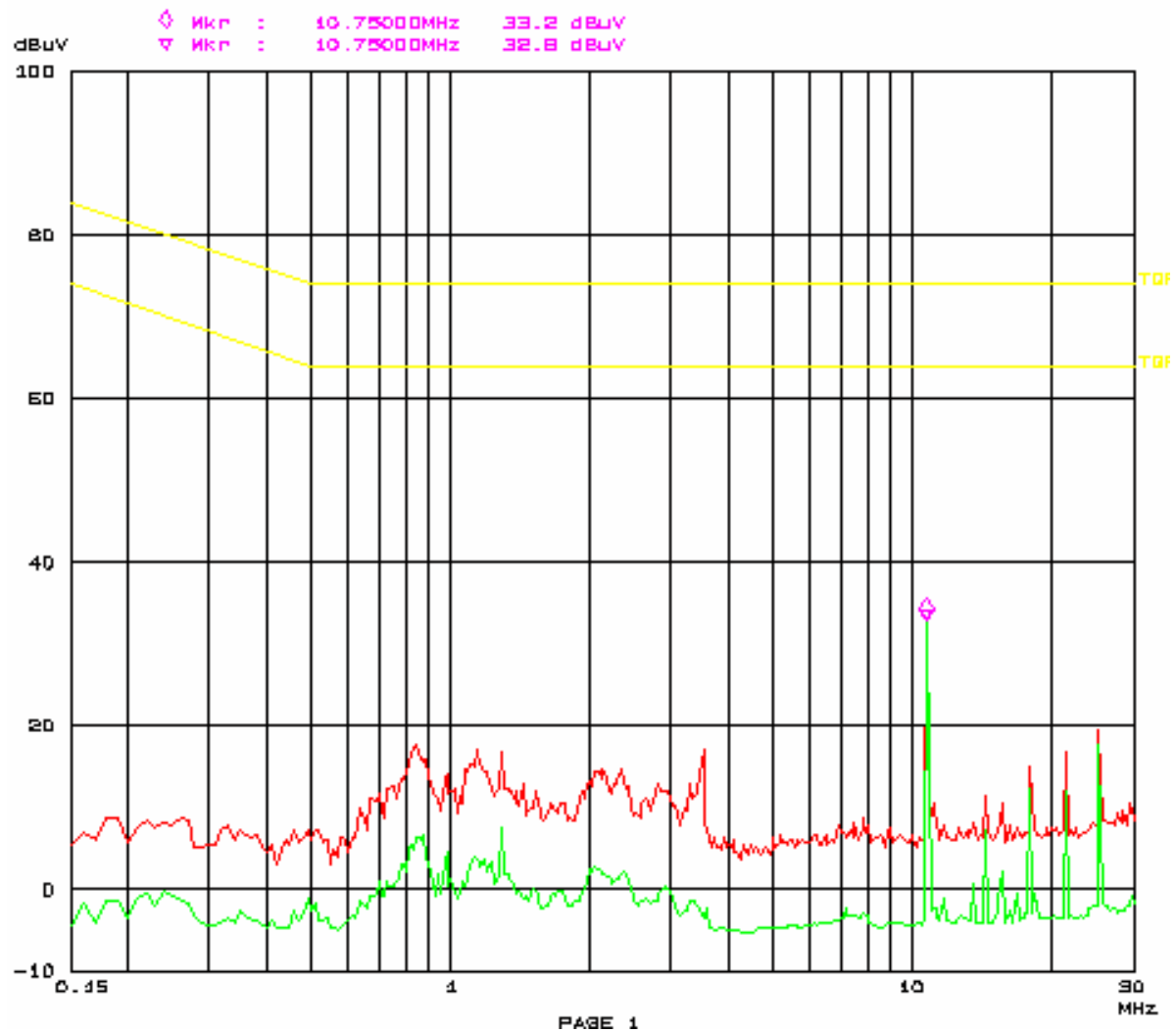
Plot(s) of Test Data

Plot(s) of Test Data is presented hereinafter as reference.

CONDUCTED EMISSION TEST
EN55022

14. Jan 08 09:01

EUT: TELEPHONE M/N: XL-2023ID
Manuf: SLICAN SP. ZO.O
Op Cond: RUNNING
Operator: King
Test Spec: RJ11
Comment: Temp: 24%Humid: 60%



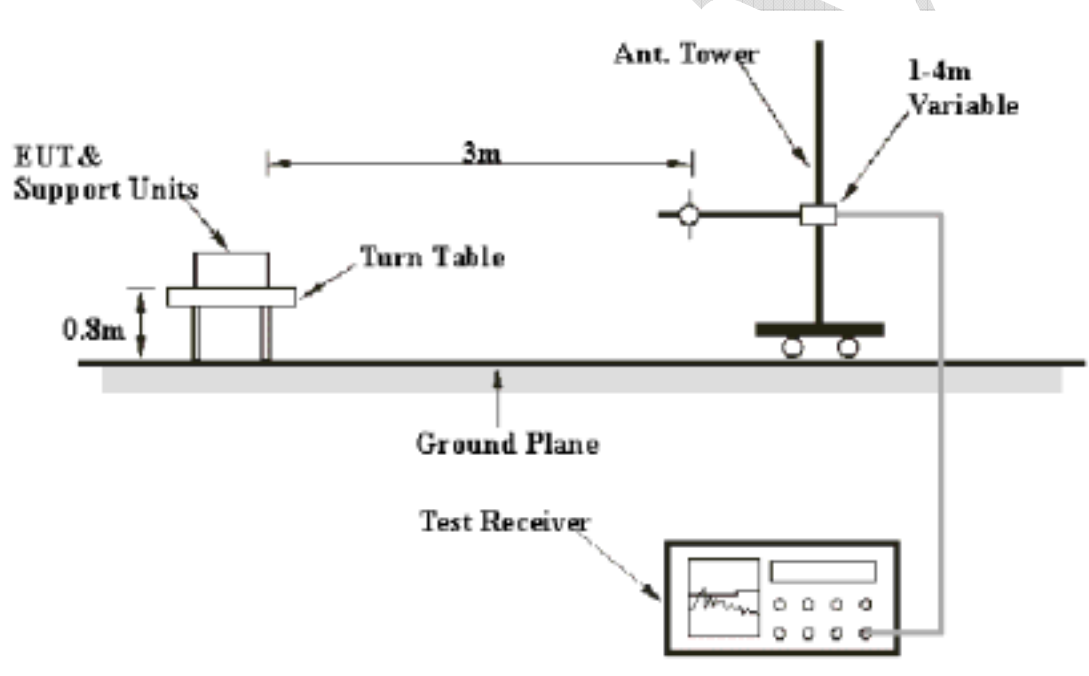
EN 55022 §6-RADIATED DISTURBANCE

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is ± 4.0 dB.

Test System Setup



The radiated emission tests were performed in the 3 meters chamber B test site, using the setup accordance with the CISPR 16-1: 2002, CISPR16-2: 2002. The specification used was EN 55022 Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The system was investigated from 30 MHz to 1000 MHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

<i>Frequency</i>	<i>RB/W</i>	<i>VB/W</i>	<i>IF B/W</i>
30 MHz-1 GHz	100 kHz	300 kHz	120 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	8447E	1937A01046	2007-11-15	2008-11-15
Rohde & Schwarz	EMI Test Receiver	ESCI	100224	2007-10-16	2008-10-16
Sunol Sciences	Antenna	JB1	A040904-1	2007-08-14	2008-08-14

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the Quasi-peak detection mode.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Loss and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Loss} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Results Summary

According to the data in the following table, the EUT complied with the EN 55022 Class B, with the worst margin reading of:

4.1 dB at 956.635750 MHz in the Horizontal polarization.

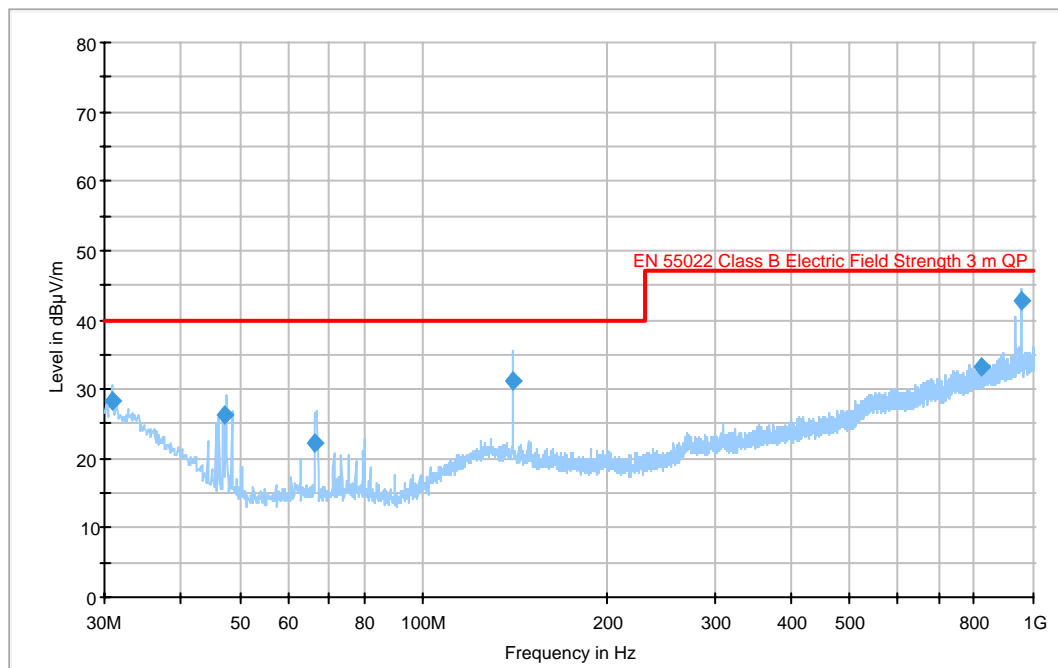
Test Data**Environmental Conditions**

Temperature:	25 ° C
Relative Humidity:	56 %
ATM Pressure:	100.2 kPa

The testing was performed by King Tang on 2008-01-14.

Test Mode: Running

Auto Test (EN55022)



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Polarity (H/V)	Turntable Position (deg)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
956.635750	42.9	112.0	H	10.0	1.9	47.0	4.1
818.746688	33.3	328.0	V	54.0	-0.1	47.0	6.7
139.936875	31.2	274.0	V	47.0	-10.9	40.0	8.8
30.923688	28.4	185.0	V	244.0	-4.6	40.0	11.6
47.345375	26.2	281.0	V	0.0	-15.9	40.0	13.8
66.497875	22.1	117.0	V	356.0	-16.8	40.0	17.9

EXHIBIT A - PRODUCT LABELING

Proposed CE Label Format



Specification: Text is Black or white in color and is left justified. Labels are printed in indelible ink on permanent adhesive backing and shall be affixed at a conspicuous location on the EUT or silk-screened onto the EUT.

Proposed Label Location on EUT

CE Label Location



Product Manual

Please refer to Exhibit E.

EXHIBIT B - EUT PHOTOGRAPHS

EUT – Top View



EUT – Handset Off View

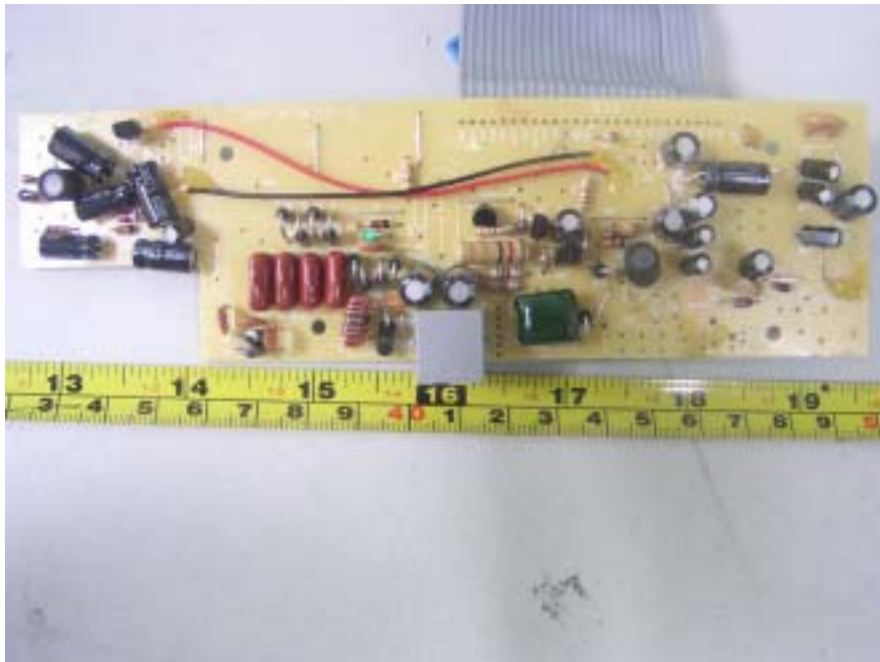
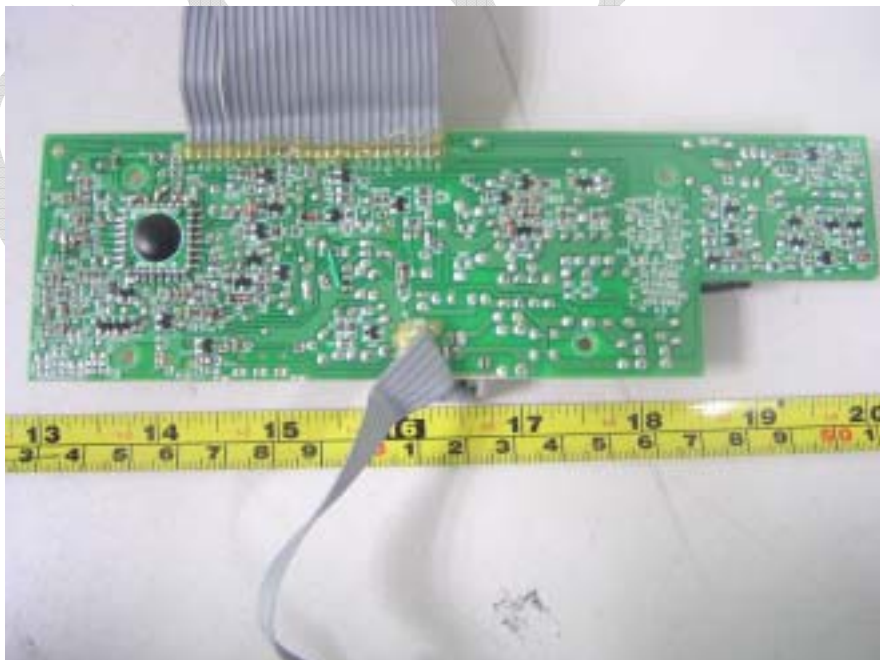


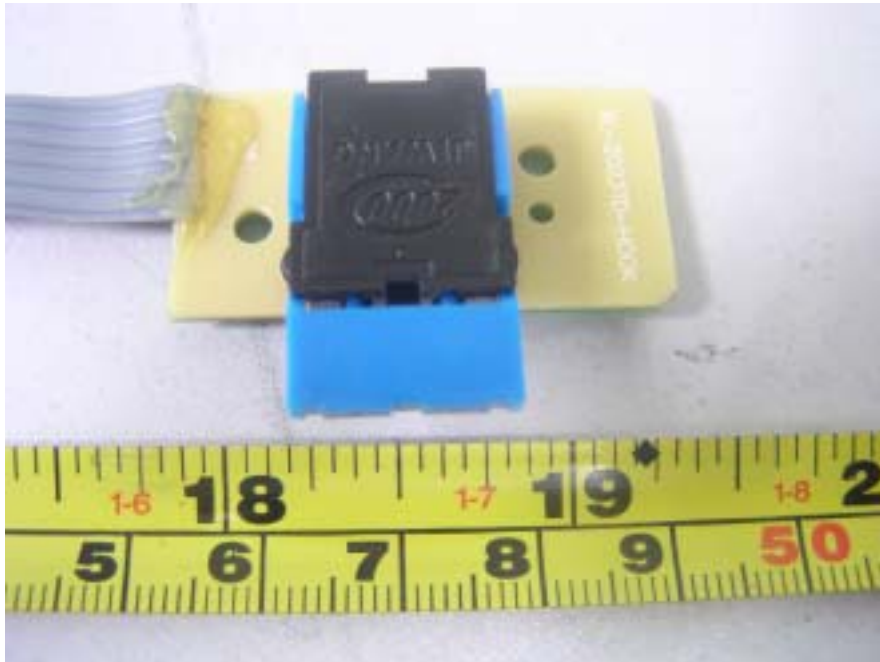
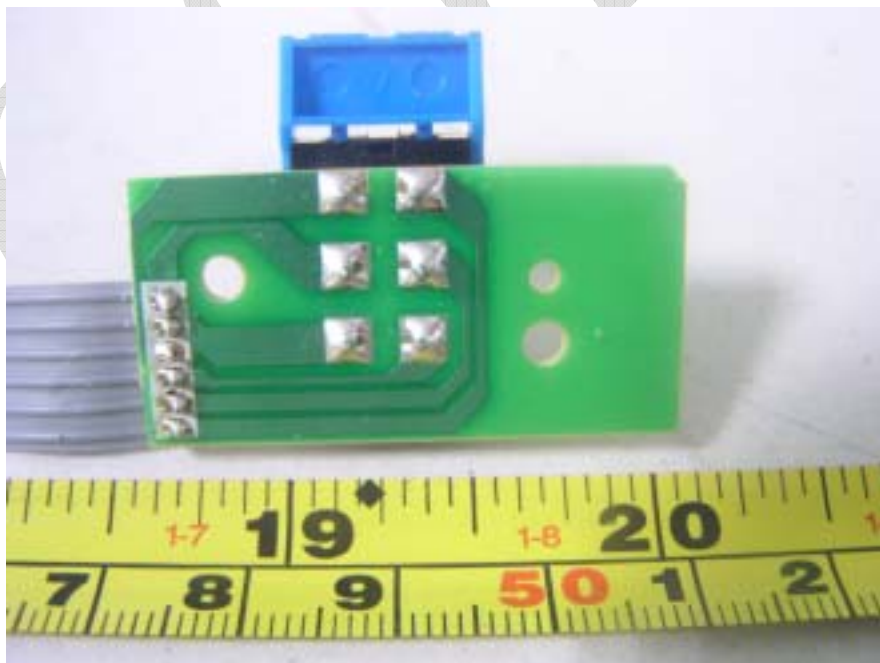
EUT – Bottom View

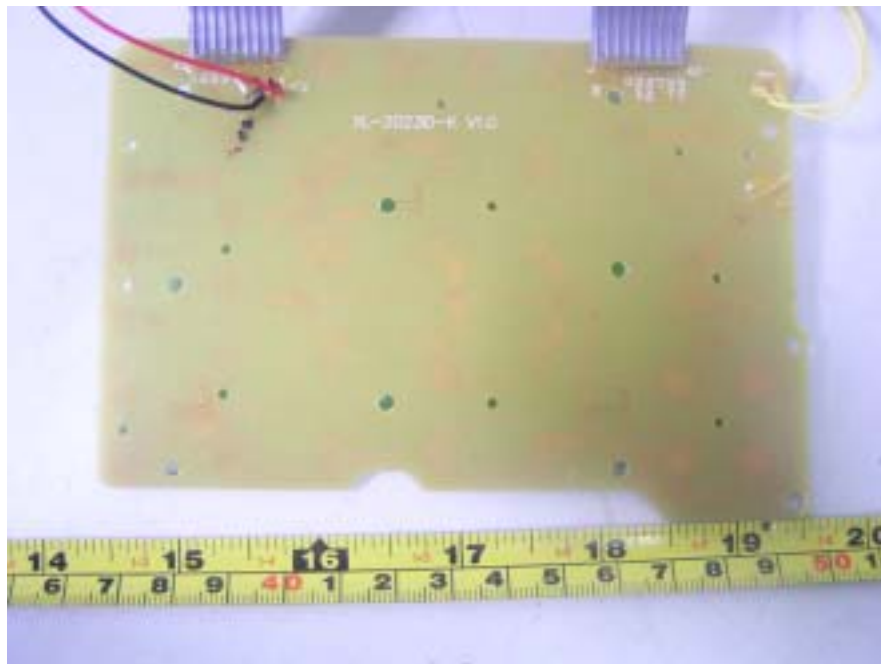
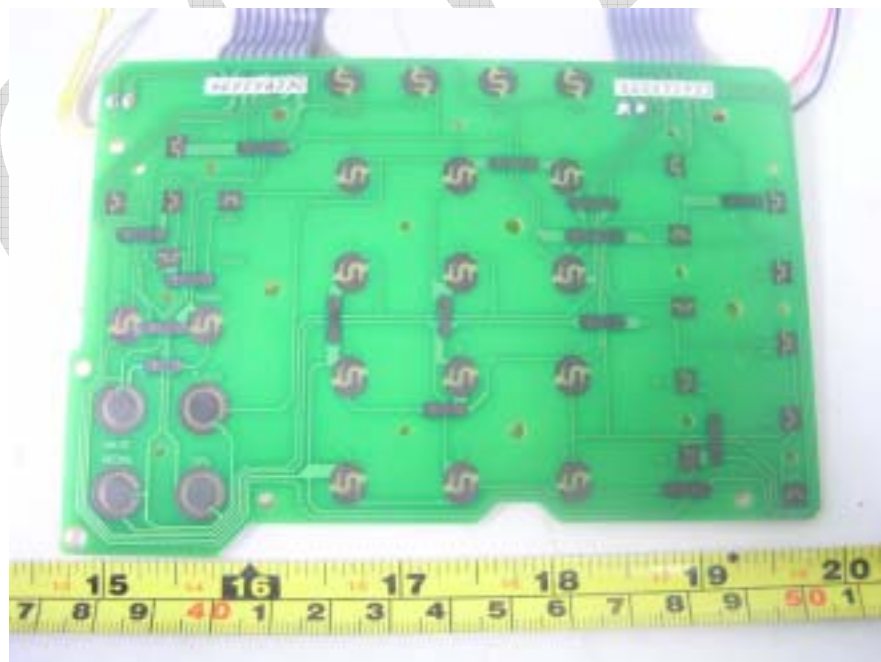


EUT – Cover off View



EUT – Control Board Components View**EUT – Control Board Circuit View**

EUT – Signal Board Components View**EUT – Signal Board Circuit View**

EUT – Keystroke Board Circuit Top View**EUT – Keystroke Board Circuit Bottom View**

EUT – Display Board Components Top View**EUT – Display Board Components Bottom View**

EUT – Speaker Top View



EUT – Speaker Bottom View



EXHIBIT C - TEST SETUP PHOTOGRAPHS

Conducted Disturbance at Telecommunication Port - Front View (RJ11)



Conducted Disturbance at Telecommunication Port - Side View (RJ11)



Radiated Disturbance - Front View



Radiated Disturbance - Rear View



EXHIBIT D –BLOCK DIAGRAM / SCHEMATICS

Not Available at Time of Test

EXHIBIT E – USER MANUAL

Not Available at Time of Test